

STUDIES IN THE EUPATORIEAE, (COMPOSITAE)

IV

R. M. KING

HOFMEISTERIA

Walpers in Walp. Repert. 6: 106. 1846. (Type species *Helogyne fasciculata* Benth.) *Podophania* Baill. Bull. Soc. Lin. Paris. 1: 268. 1880. (Type species *Phania ? dissecta* Hook. & Arn.)

Woody sub-shrubs or perennial herbs. Leaves in 2/5 phyllotaxy (usually congested at flowering nodes, appearing whorled). Inflorescence monocephalic. Heads broadly campanulate, (100) 150-175 (250) flowered. Phyllaries numerous, multiseriate, densely imbricated, narrowly lanceolate. Receptacle convex, naked. Florets discoid, perfect, 5 lobed, white, pink, or lavender, glabrous, narrowly tubular. Stamens 5, appendaged. Pollen tricolpate, surface nearly smooth. Pappus in a single series, usually consisting of setae and intervening squamae. Achenes narrowly prismatic, 5 ribbed, ribs setose, sub-cuticular cells of ribs and lateral walls with many minute punctations, carpopodium somewhat flaring, with many rows of short or transversely elongate cells; basal foramen prominent with an even margin. Chromosome number determined from one species as $X = 18$ (Kyhos, unpublished), $X = 19$ (Turner & Flyr 1966).

The species of *Hofmeisteria* may be distinguished by the following key:

1. Anther appendages appressed, not visible at 10 \times magnification 2
1. Anther appendages erect, visible at low magnification 3
2. Pappus of 12-15 setose bristles of rather uniform length 1. *H. dissecta*
2. Pappus of 5-6 long setae with intervening short, very lacerate

- squamae 2. *H. sinaloensis*
3. Pappus consisting of 5-6 long setae with essentially no intervening members 4
3. Pappus consisting of 3-5 long setae with distinct intervening groups of short setae or squamae 6
4. Leaves only lobed and dentate, not dissected 3. *H. standleyi*
4. Leaves dissected 5
5. Segments narrow with few teeth restricted distally
..... 4. *H. schaffneri*
5. Segments broad with many teeth 5. *H. urenifolia*
6. Leaf lamina broad 6. *H. fasciculata*
6. Leaf lamina narrow, filiform 7
7. Peduncles highly differentiated, arising from a cluster of leaves 7. *H. crassifolia*
7. Peduncles not highly differentiated, not arising from a cluster of leaves 8. *H. filifolia*

1. **Hofmeisteria dissecta** (Hook. & Arn.) R. M. King and H. Robinson. *Phytologia* 12: 466. 1966.

Phania? dissecta Hook. & Arn. Bot. Beech. 433. 1841
Acapulco, Guerrero, Mexico. *D. Sinclair sn* (Holotype K!)

Eupatorium dissectum (Hook. & Arn.) Benth. Bot. Sulph. 113. 1844. Not *Eupatorium dissectum* A. Gray, Proc. Am. Acad. 18: 100. 1883.

Podophania Ghiesbreghtiana Baill. Bull. Soc. Lin. Paris 1: 268. 1880. Mexico, without precise locality, *Ghiesbreght 315* in Oct. 1844, (Holotype P! isotype fragment F!)

Podophania dissecta (Hook. & Arn.) B. L. Robinson Proc. Amer. Acad. 47: 192. 1911.

Herb to 1 m. tall; dichotomously branched; leaves opposite, tripinnately dissected, blades triangular in outline, up to 7 cm long, 6-7 cm wide; peduncles up to 10 cm long; heads 6-7 mm high, 5-6 mm wide, 100-150 flowered; phyllaries unequal, striate, *ca* 50; corolla tube white, *ca* 3.5 mm long; the anthers (including appendages) *ca* .75 mm long, *ca* 100 μ wide; appendages very small, cucullate; filaments *ca* 2 mm long; style branches greatly exerted at maturity *ca* 2.5 mm long; style tube *ca* 2.5 mm long; pappus usually of 12-15 scabrate setae equaling the length of the corolla; achenes dark brown, *ca* 2 mm long; pollen *ca* 11 μ in diameter; chromosome number not determined.

Plate 1362.

Plate 1362. *Hofmeisteria dissecta*, Holotype (K), Sinclair s.n.

SPECIMENS EXAMINED: MEXICO: COLIMA: n. edge of Colima City, *Langman 3212* (MEXU, PH); Manzanillo, *Palmer 1371* in 1891 (GH 2 sheets, NY, US); GUERRERO: Pungarabato, Coyuca, *Hinton 5453* (GH, K, NY, US); 20 miles s of Chilpancingo, *Cronquist 9703* (MEXU, MICH, NY, TEX, US); Acapulco, *Howell 8506* (CAS); 30 miles n e of Acapulco, *R. M. King 4176* (F, MICH, NY, TEX, UC, US); Temisco, Barranca del Consuelo, *Mexia 8812* (CAS, F, G, NY, UC, US); Rincón de la Via, *Kruse 73* (MEXU); El Calabaral, *Langlassé 470* (G, GH, K, MICH, US); JALISCO: 8 miles s e of Pihuamo, *McVaugh & Koelz 1511* (MICH); 9 miles w of Bahia de Navidad, *McVaugh & Koelz 1723* (MICH); 2.5-4 miles n of La Cuesta, *McVaugh 21218* (MICH); MEXICO: Pungarancho, Temascaltepec, *Hinton 3127* (GH, K, US); MICHOACÁN: Chila, 8 km n w of Aquila, *Rzedowski 17943* (MICH); La Salada, *Nelson 6928* (GH, NY, US). Trojes, Coalcomán, *Hinton 12292* (K, MICH, NY, P, UC, US); SINALOA: San Ignacio, *Ortega 4972* (GH, MEXU, US).

2. **Hofmeisteria sinaloensis** H. S. Gentry, *Brittonia* 6: 329. 1948. Capadero, Sierra Tacuichamona, Sinaloa, Mexico. Feb. 18, 1940. *H. S. Gentry 5615* (Holotype MICH! isotypes DS! GH! NY! US!).

Three to four dm tall, forming irregular spreading clumps; few branched, older wood glabrous, the younger pubescent; leaves alternate, pinnately dissected in 3 or rarely 5 lobed, thin leaflets; peduncles slender, 7-9 cm long, sparingly pubescent; heads 7-8 mm high, 6-7 mm wide *ca* 150 flowered. Phyllaries unequal, 5 nerved *ca* 60. corolla tube white, 3.5-4 mm long, the anthers *ca* 1.25 mm long (including appendages) *ca* 110 μ wide, appendages very small, cucullate; filaments 1.5-2 mm long; style branches greatly exserted at maturity, *ca* 3 mm long; style tube *ca* 3 mm long; pappus usually of 5-6 long scabrate setae equaling the length of the corolla, and 6-10 short intervening lacerate squamae usually less than .5 mm long; achenes *ca* 2 mm long, dark brown or black; pollen *ca* 16 μ in diameter; chromosome number not determined.

SPECIMENS EXAMINED: MEXICO: SINALOA: Capadero, Sierra Tachuichamona, *Gentry 5581* (DS, F, GH, MICH, NY, US); 12 miles e of Esquinapa, along highway 15, *Gentry, Barclay & Arguelles 19466* (US).

Plate 1363.



Plate 1363. *Hofmeisteria sinaloensis*, Holotype (MICH), Gentry 5615.

3. **Hofmeisteria standleyi** (Blake) R. M. King and H. Robinson, *Phytologia* 12: 467. 1966.

Fleischmannia standleyi Blake *Contr. U.S. Nat. Herb.* 22: 590. 1924. Mexico: Sonora, Sierra de los Alamos, March 19, 1910. *J. N. Rose, P. C. Standley & P. G. Russell 13073* (Holotype U:!
isotype NY!)

Fleischmannia urenifolia (Hook. & Arn.) Benth. and Hook. var. *Mexiae*, B. L. Robinson, *Contr. Gray Herb.* 96: 18. 1931. Mexico: Jalisco, Hacienda del Ototal, east of San Sebastian, alt. 1500 meters, "herb growing in crevices of rock near water, steep wooded slope of narrow cañon." February 15, 1927. *Ynes Mexia 1684a* (Holotype GH!
isotypes CAS! F! G! UC! US!).

Perennial herb ascending from a procumbent stem 25-50 cm tall; few branched, rather densely pilose; leaves alternate; blades ovate, 2-4 cm long, 1.7-2.7 cm wide, acute or obtuse, unequally 4-6 toothed on each side or sometimes 3 lobed; peduncles up to 10.5 cm. long; heads 8-9 mm high, 8-11 mm wide, *ca.* 150 flowered; phyllaries unequal, 3 nerved, *ca.* 60; corolla tube white or tinged with purple 4.5-5 mm long; the anthers (including appendages) *ca.* 1.75 mm long *ca.* 125 μ wide, appendages obtuse, *ca.* 220 μ long; filaments *ca.* 2.5 mm long; style branches greatly exerted at maturity 1.5-2 mm long; style tube 3-3.5 mm long; pappus consisting of 5-7 scabrate setae *ca.* 4.5 mm long and short intervening lacerate-margined squamae; achenes dark brown or black, 1.75-2.0 mm long; pollen *ca.* 18 μ in diameter; chromosome number not determined.

SPECIMENS EXAMINED: MEXICO: JALISCO: Hacienda del Ototal. e of San Sebastian, *Mexia 1684* (CAS, F, MICH, NY); NAYARIT: 10 miles s e of Ahucatlan, *McVaugh 15179* (MICH); SINALOA: Africa, Sierra Tacuichamona *Gentry 5690* (DS, GH, MICH); San Ignacio, *Orettega 288* (MEXU); Cerro de la Silla, San Ignacio, *Montes & Salazar 288* (US).

4. **Hofmeisteria schaffneri** (A. Gray) R. M. King and H. Robinson, *Phytologia* 12: 467. 1966.

Fleischmannia Schaffneri A. Gray, *Proc. Am. Acad.* 41: 101, 1881. San Luis Potosí "In montibus umbrosis humidis

Plate 1364.



Plate 1364. *Hofmeisteria standleyi*, Holotype (US), Rose, Standley and Russell 10073.

Plate 1365.



Plate 1365. *Hofmeisteria schaffneri*, Holytype (GH), Schaffner 349.

prope San Francisco." August 1876, *J. G. Schaffner 349* (Holotype GH! isotype NY!).

Ca 25-35 cm tall; stems few branched glandular pubescent; leaves chiefly alternate, the blades triangular in outline *ca* 1 cm long and wide, dissected, lobes oblanceolate; peduncles up to 10 cm long; heads 9-10 mm high, 8-11 wide, *ca* 150 flowered; phyllaries unequal violaceous; striate, *ca* 50. corolla tube white or pink, 4.5-5 mm long; the anthers *ca* 1.5 mm long (including appendages) *ca* 125 μ wide, appendages obtuse *ca* 125 μ long; filaments 1.5-2 mm long; style branches greatly exerted at maturity 3-3.5 mm long; style tube *ca* 3 mm long; pappus consisting of 4-7 long maroon scabrate setae 4-4.5 mm long with a very short crown of intervening lacerate-margined squamae; achene, *ca* 1.5 mm long, dark brown; pollen 17-18 μ in diameter; chromosome number not determined.

SPECIMENS EXAMINED: MEXICO: JALISCO: Real Alto, trail to Arroyo del Jaguay, *Mexia 1752* (CAS, DS, F, G, GH, MICH, NY, UC, US). 7-8 miles n w of Los Volcanes, *McVaugh 12205* (MEXU, MICH, US). Chiquilistlan, *Jones 259* (US). SAN LUIS POTOSÍ, *M. Urbinox sn* (MEXU).

5. Hofmeisteria urenifolia (Hook. & Arn.) Walp. in Walp. Rep. 6: 106. 1847.

Phania? urenifolia Hook. & Arn. Bot. Beech. Voy. 297. 1840. *Beechey*, Mexico without precise locality (Holotype K!).

Helogyne urenifolia Walp. in Walp. Rep. 4: 457. 1848, by typographical error.

Phania urenaefolia Benth. & Hook. f. Gen. Pl. 2: 243. 1873.

Fleischmannia urenaefolia Benth. & Hook. f. ex Hemsl. Biol. Cent. Am. Bot. 2: 91. 1881.

Fleischmannia Langlassei B. L. Robinson, Proc. Am. Acad. 41: 273. 1905. Mexico: Michoacán, Arroyo de Barrabas, *E. Langlassé 27* (Holotype GH! isotypes G!, P!, US!)

Fleischmannia urenifolia (Hook. & Arn.) Benth. & Hook. f. var. *typica* B. L. Robinson, Contr. Gray Herb. 96: 17. 1931.

Plate 1366.



Plate 1366. *Hofmeisteria urenifolia*, Holotype (K), Beechey s.n.

Perennial herb 25-30 cm tall; stems few branched, striate, glabrous; leaves alternate, the blades trifid or pinnately trisect, up to 4.5 cm long and wide; peduncles up to 5 cm long; heads 9-10 mm high, 8-11 mm wide, 150-175-flowered; phyllaries unequal, usually 3-nerved, *ca* 50; corolla tube white or pink, 4.5-5 mm long; the anthers (including appendages) *ca* 1.25 mm long *ca* 125 μ wide; appendages obtuse *ca* 125 μ long; filaments 1.5-2 mm long; style branches greatly exserted at maturity, *ca* 3 mm long; style tube 2-2.5 mm long; pappus consisting of 5-7 maroon colored, scabrate setae 4-4.5 mm long and a low crown of very short lacerate-margined squamae; achenes dark brown, 1-1.2 mm long; pollen 15-16 μ in diameter; chromosome number not determined.

ADDITIONAL SPECIMENS EXAMINED: MEXICO: CHIAPAS: Monserrate, *Purpus* 218 (GH, US); 10213 (NY); 10218 (UC). DURANGO: 3-15 km toward El Salto, *McVaugh* 23609 (MICH); 50-54 road road miles w s w of El Salto, *McVaugh* 11564 (MEXU, MICH, US). GUERRERO: Tierras Blancas, *Hinton* 10143 (K, MICH); Chilacoyte, *Hinton* 14178 (F, NY, UC, US, W). JALISCO: Hacienda del Ototal, e of San Sebastian, *Mexia* 1684 (CAS, DS, GH, UC); Barranca of Beltram, *Pringle* 5492 (GH); Saltillo, *M. E. Jones* June 1, 1892 (POM). NAYARIT: 3 km n w of El Ocotillo, *McVaugh* 23529 (MICH). SINALOA: 0.9 mi w of El Palmita, *Breedlove* 1719 (MICH).

6. *Hofmeisteria fasciculata* (Benth.) Walp. in Walp. Repert. 6:106. 1846.

Helogyne fasciculata Benth. Bot. Voy. Sulph. 20: 14. 1844. Mexico: Baja California, Bay of Magdalena *Hinds* in 1841 (Holotype K!)

Hofmeisteria fasciculata (Benth.) Walp. var. *Xanti* A. Gray, Brewer & Watson Bot. Calif. 1:299. 1876. Mexico: Baja California: Cape San Lucas. August 1859 — January 1860, *L. J. Xantus* 46 (Holotype GH!; isotypes K! US! P!)

Hofmeisteria pubescens S. Watson, Proc. Amer. Acad. 24: 54. 1889. Mexico: Baja California: Muleje *Dr. Edward Palmer* 422 on December 25, 1887. (Holotype GH!)

Hofmeisteria fasciculata (Benth.) Walp. var. *Grayi* T. S. Brandeg. Zoe 5: 160. 1903. Mexico: Baja California: be-

tween San Jose del Cabo and Cabo San Lucas, *Purpus* 208 (Holotype UC!; isotype US!)

Hofmeisteria fasciculata (Benth.) Walp. var *pubescens* (Wats.) B. L. Robinson, Proc. Amer. Acad. 47: 192. 1911.

Forming clumps to 6-7 dm. tall; usually few-branched, glabrous to densely pubescent; leaves opposite below, alternate above, rather fleshy, lobed to bipinnatisect, glabrous to densely pubescent, blades 1.5-4 cm long and wide, peduncles up to 20 cm long, bearing scattered setaceous bracts. Heads 8-11 mm high, *ca* 1 cm wide, *ca* 150-flowered. Phyllaries unequal, striate, *ca* 100. Corolla tube white, pink or lavender, 4-4.5 mm long, the anthers *ca* 1.75 mm long (including appendage) 120-130 μ wide, appendages obtuse *ca* 250 μ long; filaments 1.5 - 2 mm long style branches greatly exserted at maturity *ca* 3-3.5 mm long; style tube 2.5-3 mm long; pappus of 2-3 long scabrate setae 4.5-5 mm long and 3-4 short squamulae with lacerate margins .5-1.0 mm long; achenes dark brown or dull black 2-2.5 mm long; pollen *ca* 18 μ in diameter; chromosome number determined as $n = 18$ (Kyhos unpublished) 19 (Turner & Flyr 1966).

SPECIMENS EXAMINED: MEXICO: BAJA CALIFORNIA: Catalina Island, *I. M. Johnston* 4102 (CAS); Muertos Bay, *Moran* 3562 (DS, US); Arroyo del Salto, *Moran* 7143 (CAS, DS, GH, TEX); 29 mi n of San Luis Gonzaga, *Moran* 8210 (DS, RSA); Puerto Escondido, *Dawson* 1103 (DS, F); *ca* 23 kms s of Loreto, *Carter, Alexander & Kellogg* 1998 (DS, UC, US); 8 kms n of San Juanico, *Gentry* 4313 (DS); Malau-cita to La Cruz, *Nelson & Goldman* 7304 (US); between Rancho Santa Isabel and Santa Rosalillita, *Carter & Ferris* 3419 (DS, GH, MEXU, TEX, UC, US); San Francisquito Bay, *I. M. Johnston* 3574 (CAS); San Francisco Island, *Moran* 3729 (DS, UC); *Collins, Kearney, & Kempton* 192 (US); *ca* 18 kms of Loreto, *Carter & Ferris* 3874 (UC). San Lucas, *Johansen* 535 (CAS, DS); Arroyo Salado nr San Jose del Cabo, *Purpus* 408 (GH); San Jose del Cabo, *Purpus* 262 (K, US); Barrill, *Harbison* 41604 (RSA); Punta Frailes, *Dawson* 1143 (MICH); El Coyote, *Porter* 113 (CAS, DS, G, MEXU, TEX, UC); south side of Punta Gasparino, *Constance* 3189 (DS, F, GH, MICH, UC, US); Aqua Verde, *Rose* 16577 (GH, NY, US); San Benito, *T. S. Brandege* April 10, 1889 (UC); 16 mi s of Puertocitos, *J. R. Hastings & R. M. Turner* 63-139 (DS); $\frac{3}{4}$ mi s of Puertocitos, *Wiggins & Wiggins* 15864 (DS, MICH, TEX); Santa Maria Bay, *Rose* 16265 (NY, US); *Moran* 3536 (DS); Espiritu Santo, *Collins, Kearney & Kempton* 140 (US); *Rose* 16867

Plate 1367.



Plate 1367. *Hofmeisteria fasciculata*, Holotype (κ), Hinds 1841. in 1887.

(US); one mi n of Coyote Cove Bahia de la Concepcion, *Wiggins 17411* (DS); Punta Santa Domingo, *Wiggins & Wiggins 18270* (CAS, DS, MEXU, MICH); Bahia de la Concepcion, *Wiggins & Wiggins 19000* (DS, MICH, RSA); Concepcion Bay, *Rose 16680* (NY, US); Tortuga, *I. M. Johnston 3600* (CAS); opposite Pond Island, Angel de la Guarda Island, *I. M. Johnston 4233* (CAS, DS, GH, NY, UC, US); Las Animas Bay, *I. M. Johnston 3493* (CAS, DS, GH, NY, UC, US); San Nicholas Bay, *I. M. Johnston 3714* (CAS, DS, F, GH, NY, UC, US); Puerto Balandra, Carmen Island, *I. M. Johnston 3814* (CAS, GH, UC, US); Bahia de los Angeles, *Carter, Alexander & Kellogg 2540* (DS, UC, US); between Bahia de los Angeles and San Borja, *Cowan 2322* (TEX, US); 3.5 mi w of Bahia de los Angeles, *Wiggins & Wiggins 16018* (DS, MICH, TEX); 1.5 mi w of Bahia de los Angeles, *Wiggins & Wiggins 14792* (CAS, DS); Los Angeles Bay, *I. M. Johnston 3456* (CAS, US); 4 mi s of Todos Santos, *Thomas 7788* (US); 11 mi s of Todos Santos, *Whitehead 874* (DS); 17 mi s of Todos Santos, *Shreve 7227* (F, MICH); Mulege, *Wiggins & Wiggins 18223* (CAS, DS, MEXU, MICH, TEX); La Paz, *Wiggins 14569* (CAS, DS, GH); *M. E. Jones 24080* (DS, F, GH, K, MICH, NY, PH, POM, RSA, SMU, TEX, UC); *T. S. Brandegees 275* (F, NY, PH); *Edward Palmer 137* in 1890 (GH, MEXU, NY, UC, US); Santa Cruz Island, *Moran 3843* (DS, UC); Cerralvo Island, (DS, UC); Monserrate Island, *Moran 3888* (DS, UC); Santa Catalina Island, *Moran 3871* (DS, UC); Isla San Jose, *Wiggins 17679* (US); *Wiggins, Carter & Ernst 365* (DS, UC); *Moran 3788* (DS, UC); Pichilique Island, *Rose 16526* (US); Ildefonso Island, *Moran 4136* (DS, UC); *I. M. Johnston 3744* (CAS, DS, F, GH, NY, UC, US); San Marcos Island, *Moran 3995* (DS, UC); *Ferris 8654* (DS, MICH, NY, POM, RSA, US); Coronados Island, *I. M. Johnston 3765* (CAS, GH, US); Carrisalitos, Magdalena Plain, *Gentry 4447* (DS, GH); Magdalena Island, *Moran 10808* (DS, MEXU, MICH, RSA, UC); *T. S. Brandegees* January 1889 (DS, UC); *Orcutt 12* (US); Magdalena Bay, *Mason 1897* (CAS, GH, US); *T. Crocker* August 9, 1932 (CAS, DS, GH). Isla Danzante, *Wiggins 17553* (US); *Carter & Sharsmith 4262* (UC); *Wiggins 17550* (DS); Carmen Island, *Dr. Edward Palmer 875* in 1890 (GH, NY, US); *Rose 16618* (NY, US); *Carter & Ferris 3717* (UC); Isla Partida, *I. M. Johnston 322* (CAS, DS, GH, NY, UC, US); near Santa Rosalia, *Shreve 7062* (F, GH, MICH); Santa Agueda, 5 m w of Santa Rosalia, *Shreve 6539a* (MICH); 10 mi n of Santa Rosalia, *F. M. Reed 6265* (POM); 5 mi w of Santa Rosalia, *Ferris 8716* (DS, US); Santa Rosalia, *Edward Palmer 178* in 1889 (CAS, F, GH, NY, UC, US). SONORA: Puerto de Lobos, *Pringle 5960* (GH); Tepoca Bay, *I. M. Johnston 3303* (CAS, GH, US).

7. Hofmeisteria crassifolia S. Wats. Proc. Am. Acad., 24: 53. 1889. "In crevices of rocks in high mountains about

Guaymas, Sonora, Mexico" *Edward Palmer 309* in 1887 (Holotype GH! isotypes DS! NY! US!)

Suffrutescent, brittle plants 6-25 cm tall. Stems woody, glabrous, many-branched. Leaves alternate, linear, once or twice pinnatifid, triangular in outline, glabrous, succulent. Blade 1-1.5 cm long. Petioles 1.3-5 cm long, glabrous. Peduncles solitary, erect, glabrous with scattered setaceous bracts, 1-3 mm long, 5-18 cm tall. Heads broadly campanulate to subhemispherical, 8 mm to 1 cm high, *ca* 250 flowered. Phyllaries glabrous, *ca* 100, 1-3 nerved, imbricated, linear-lanceolate, apex attenuate to acuminate. Florets pinkish, tubular, 5-lobed 4-4.5 mm long. Stamens 5. Anthers (including appendages) *ca* 1.3 mm long *ca* 165 μ wide, appendage *ca* 240 μ long *ca* 145 μ wide. Filaments *ca* 3 mm long *ca* 45 μ wide. Style-branches 2, greatly exerted at maturity, *ca* 2 mm long *ca* 120 μ wide. Pappus of 5 full length bristles nearly as long as the corolla often with 2 or 3 shorter supplementary bristles. Squamellae unequal, 10-16, 1-4 between each bristle, 1-2.5 mm long. Achenes 4-5 angled, narrowly obprismatic, dull black, 1.5-2 mm long. Pollen tricolpate, spherical, nearly smooth, *ca* 13 μ in diameter. Chromosome number not determined.

SPECIMENS EXAMINED: MEXICO: SONORA: Guaymas, *L. H. Bailey 265* (F); *Palmer 165* in 1890 (CAS, GH, NY, US); *T. S. Brandegee May 12, 1892* (F, PH); *T. S. Brandegee sn* in 1893 (NY); *Dr. Eisen April 1892* (DS); San Pedro Nolasco Island, *I. M. Johnston 3142* (CAS, GH, K, NY, US); San Pedro Bay, *I. M. Johnston 4307* (CAS, US).

8. **Hofmeisteria filifolia** I. M. Johnston Proc. Cal. Acad. Sci. 12: 1185. 1924. "partially shaded rock crevices in Palm Cañon, Angel de la Guarda Island," Baja California, Mexico. *I. M. Johnston 3418* (Holotype CAS! isotypes DS! GH! NY! US!)

Herbaceous perennial with numerous stems forming dense rounded clumps 1-6 dm tall; stems strictly branched above, striate, densely covered with glandular hairs; leaves alternate or sometimes opposite basally, lower leaves palmately five-parted into filiform lobes, these simple or three-

Plate 1368.

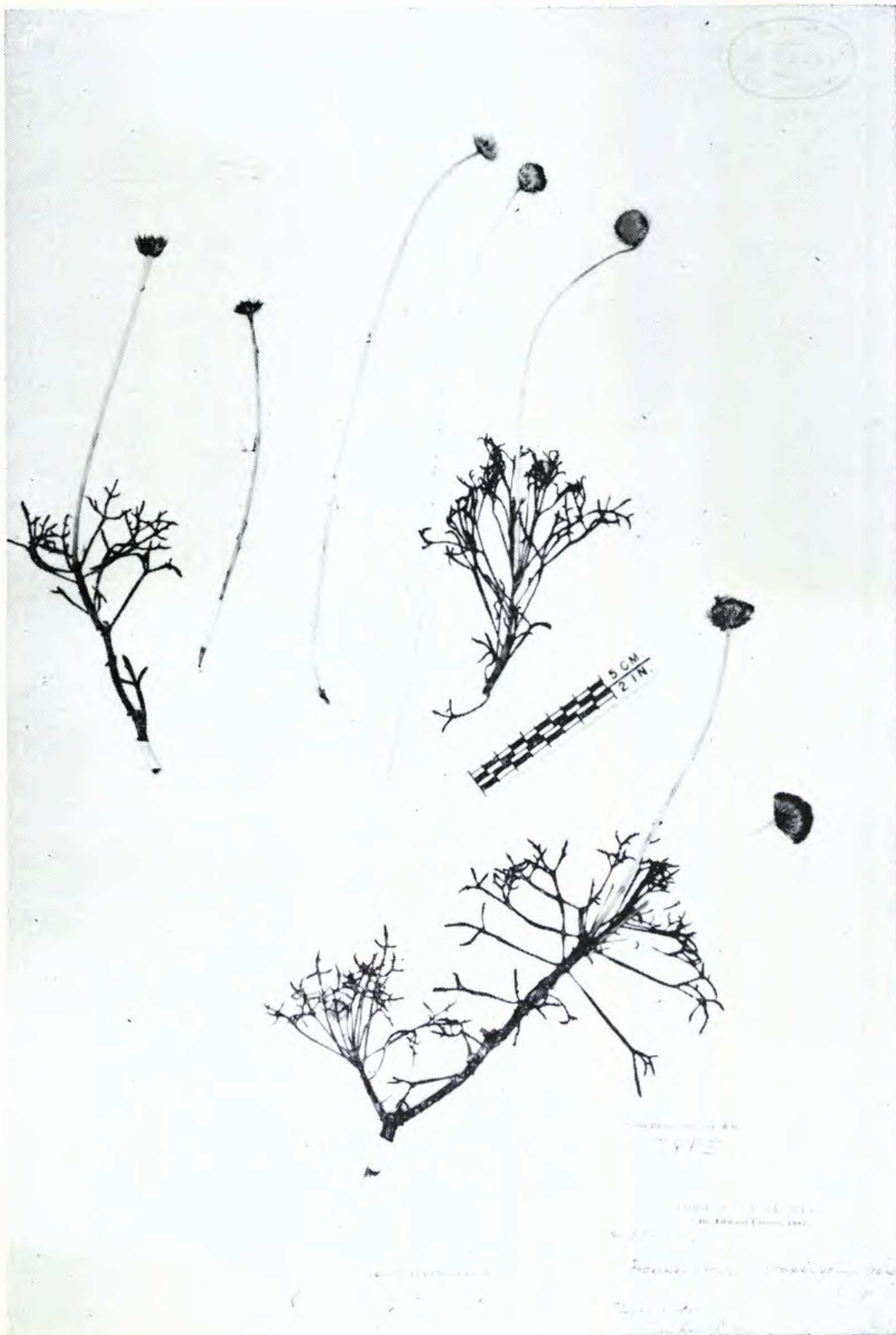
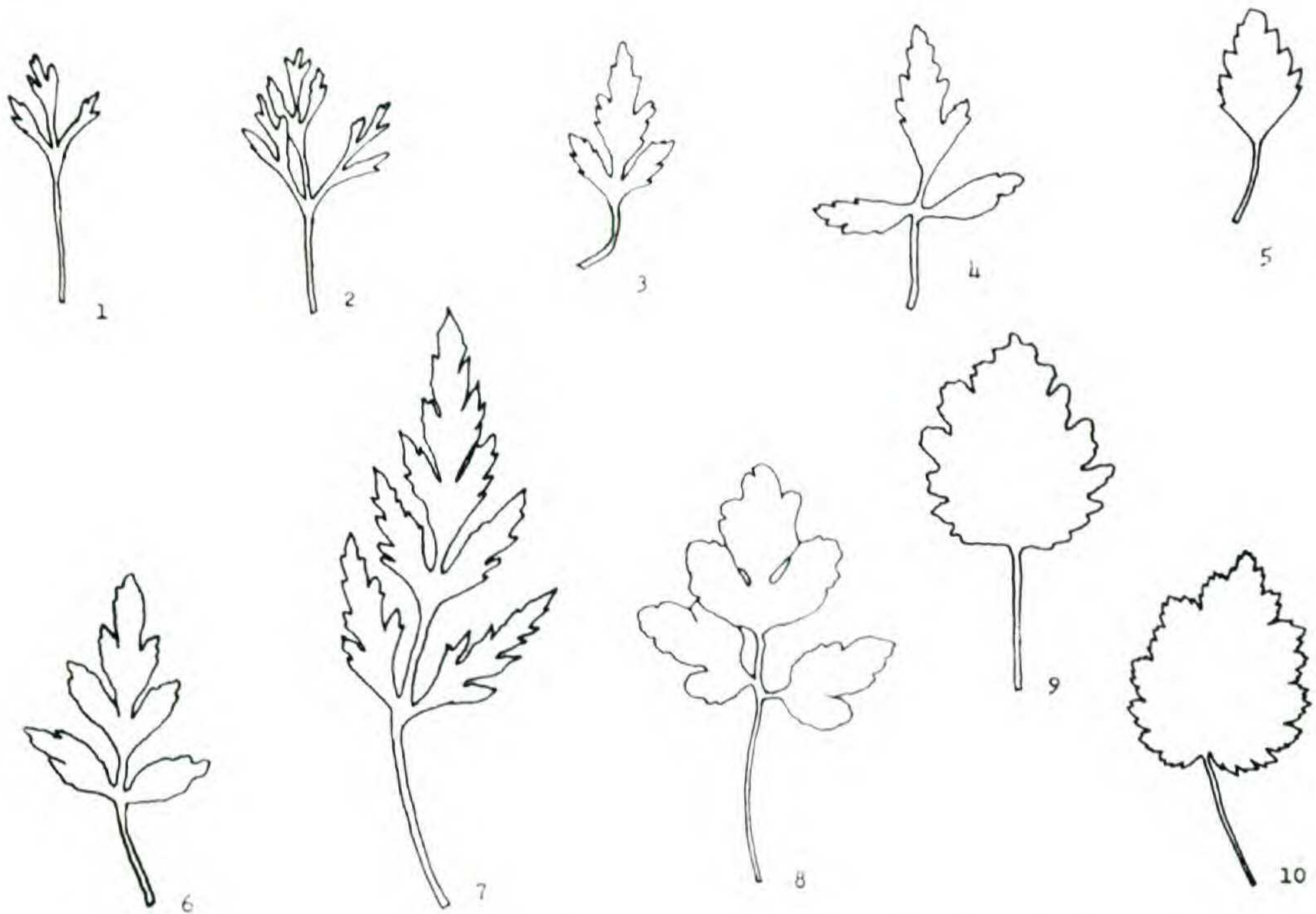


Plate 1368. *Hofmeisteria crassifolia*, Holotype (GH), Palmer 309



Leaves of *Hofmeisteria*. Figures 1-2, *H. schaffneri*. 1. *McVaugh 12205* (MICH). 2. *McVaugh 12205* (MICH). Figures 3-8, *H. ureniifolia*. 3. *McVaugh 23609* (MICH). 4. *Hinton 14272* (F). 5. *Langlassé 27* (GH). 6. *Mexia 1684* (GH). 7. *McVaugh 11564* (MICH). 8. *McVaugh 23529* (MICH). Figures 9-10, *H. standleyi*. 9. *McVaugh 15179* (MICH). 10. *Mexia 1684* (MICH).

parted, 4-7 cm long, 2-6 cm wide; lobes 0.5-1 mm wide, 2-20 mm long; peduncles slender, 1.5-9 cm long, with scattered setaceous bracts 1-3 mm long; heads *ca* 8 mm high 4-5 mm wide, *ca* 160 flowered; phyllaries unequal, 3-nerved *ca* 50. corolla tube pale pink or white 3.5 - 4 mm long; the anthers *ca* 1.75 mm long (including appendages) *ca* 165 μ wide, appendages short, blunt *ca* 100 μ long; filaments *ca* 1.5 mm long; style-branches slightly exserted at maturity 2-2.5 mm long; style-tube *ca* 2.5 mm long; pappus usually of 3 long scabrate setae 2.5 - 3 mm long and 8-10 short erosely dentate squamae 0.25 - 0.5 mm long; achenes *ca* 3 mm long, dark brown or black; pollen *ca* 18 μ in diameter; chromosome number not determined.

SPECIMENS EXAMINED: MEXICO: BAJA CALIFORNIA: Angel de la Guarda Island, *Moran 10391* (CAS, DS, MICH, RSA, UC, US);

Figure 11

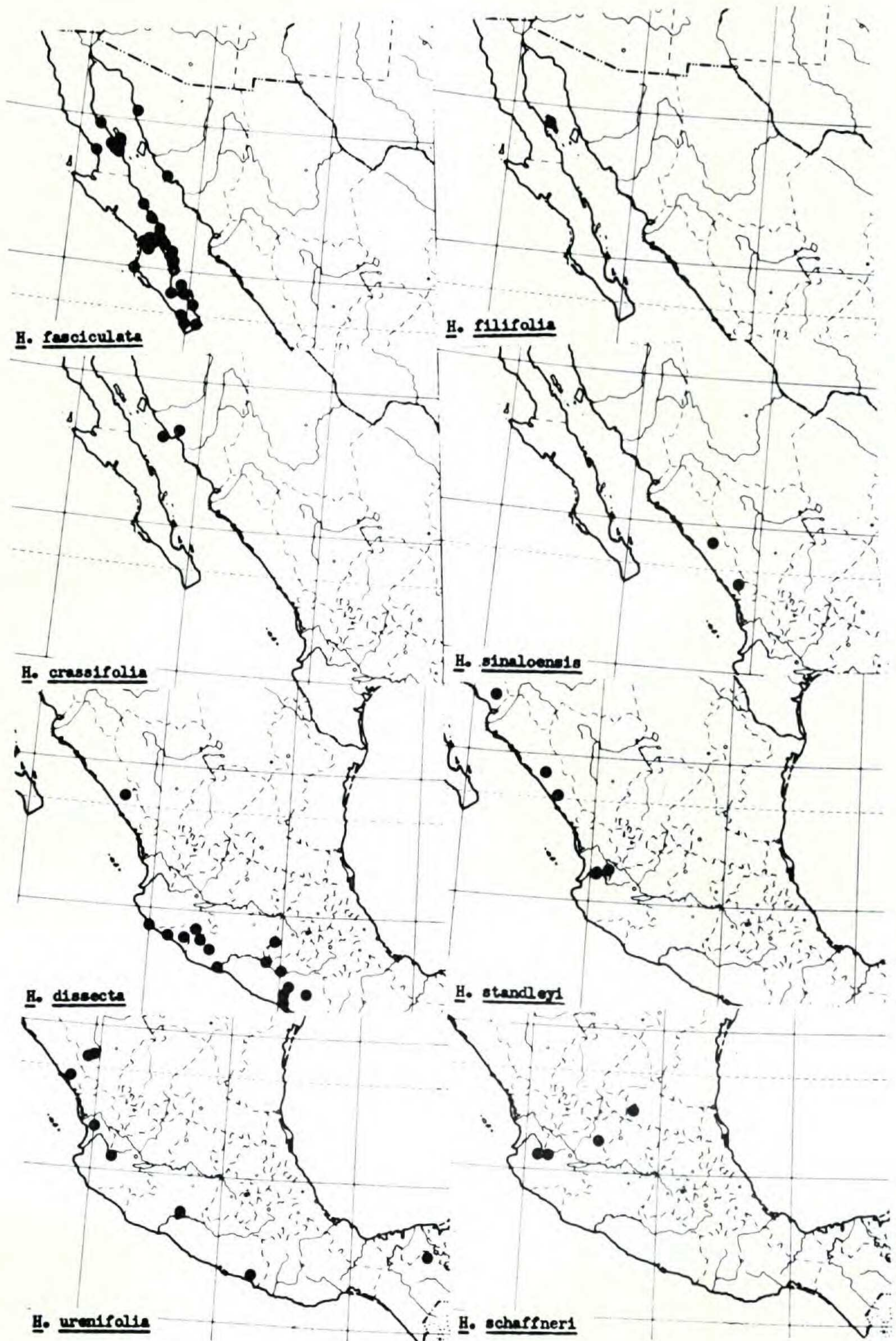


Fig. 11. Distribution of *Hofmeisteria*.

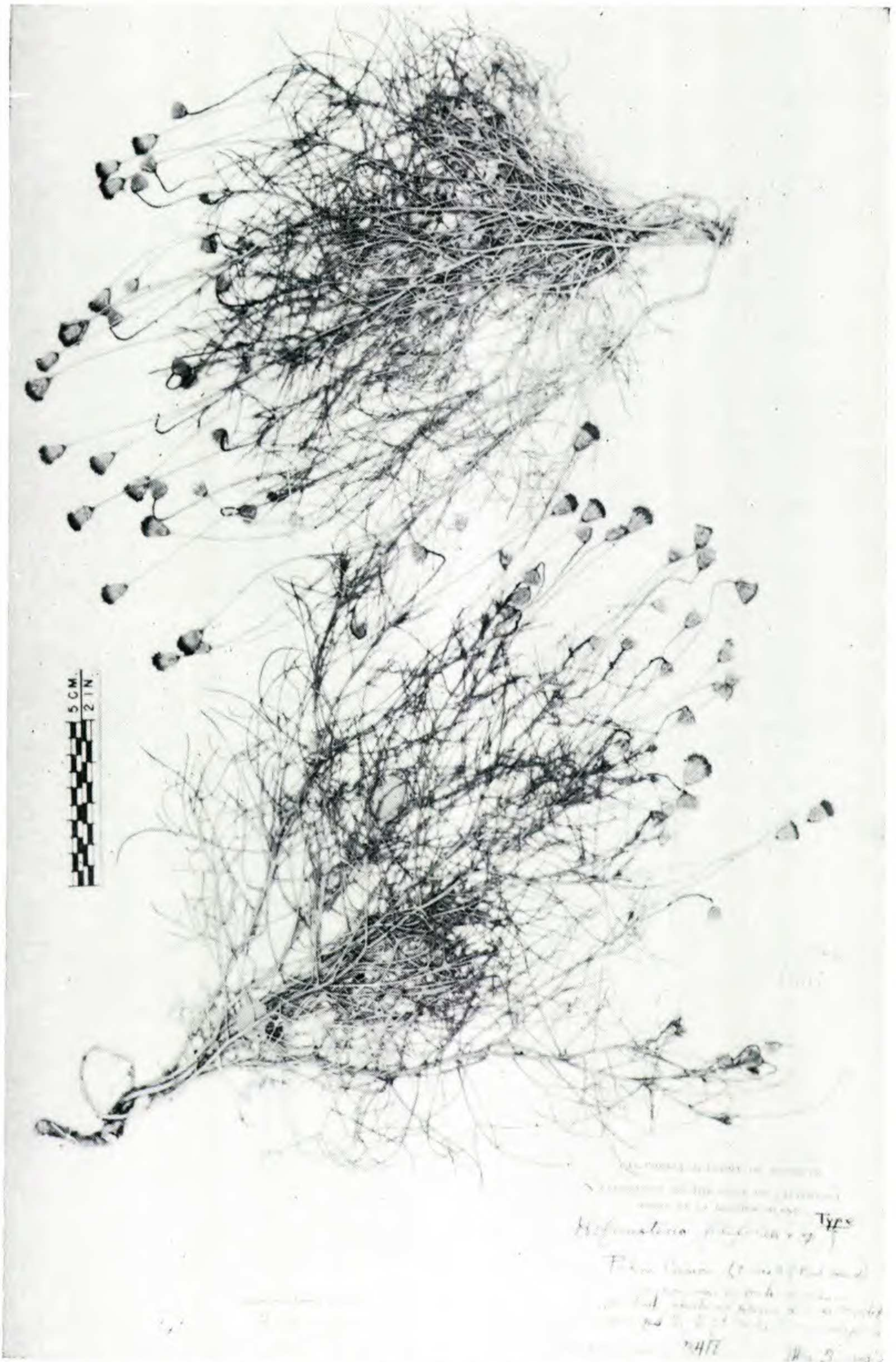


Plate 1369. *Hofmeisteria filifolia*, Holotype (CAS), Johnston 3418.

I. M. Johnston 3377 (CAS, GH, K, US); *I. M. Johnston 3364* (CAS, US);
Moran 10439 (DS, UC); *Moran 7213* (CAS, DS, MEXU, MICH, NY, RSA,
US, W).

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